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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/615,992	07/10/2003	Sterling Smith	MSS0002-US	1223
7590	06/10/2004		EXAMINER	
Michael D. Bednarek Shaw Pittman LLP 1650 Tysons Boulevard McLean, VA 22102				NGUYEN, LINH M
			ART UNIT	PAPER NUMBER
			2816	

DATE MAILED: 06/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/615,992	SMITH, STERLING	
	<b>Examiner</b>	<b>Art Unit</b>	
	Linh M. Nguyen	2816	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 10 July 2003.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1,3,5,6,8,9,11-13,15,16 and 18 is/are rejected.
- 7) Claim(s) 2,4,7,10,14 and 17 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 10 July 2003 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                     | Paper No(s)/Mail Date. _____ .  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____ .                                  |

## DETAILED ACTION

Claims 1-18 are presented in the instant application according to the Applicant's filing on 07/10/2003.

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 5, 6, 8, 9, 12, 13, 15 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Akagiri (U.S. Patent No. 5,157,760).

With respect to claims 1, 5, 6, 12, 13, Akagiri discloses, in Figure 1, a frequency synthesizer including a) a divider [21] for receiving a reference clock [1] with a substantially fixed period and generating an output clock with a time-varying period; b) a noise-shaped quantizer [24] for quantizing a period control word [from 25] to a time-varying value in response to the output clock fed from the divider so that the divider generates the output clock by means of dividing the reference clock by the time-varying value; and a filter [12] for substantially filtering out jitter from the output clock.

With respect to claims 8 and 15, Akagiri discloses, in Figure 1, that the reference signal is a reference clock with a substantially fixed period.

With respect to claims 9 and 16, Akagiri discloses, in Figure 1, that the output signal is an output clock with a time-varying period and a substantially precise long-term average frequency (*from division, 21*).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3, 11 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akagiri (U.S. Patent No. 5,157,760) in view of Melanson (U.S. Patent No. 5,896,101).

With respect to claims 3, 11 and 18, Akagiri discloses all of the claimed limitations as expressly recited in claim 1, except for the noise-shaped quantizer being a delta-sigma quantizer.

Melanson discloses in column 1, lines 30-50, a delta-sigma quantizer.

To configure the quantizer in the circuit of Akagiri with a delta-sigma quantizer as taught by Melanson for noise reduction due to improved prediction of the in-band quantization error would have been obvious to one of ordinary skill in the art at the time of the invention since Akagiri teaches that high order delta-sigma quantizers would facilitate good signal to noise ratio and are relatively stable and easy to design (*see Melanson, col. I, lines 30-50*).

***Allowable Subject Matter***

5. Claims 2, 4, 7, 10, 14 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:  
The closest prior art on record does not show or fairly suggest

- a) The frequency synthesizer, in which the period control word has a bit resolution greater than that of the time-varying value, as called for in claims 2, 10 and 17; or
- b) The frequency synthesizer, in which the filter is an analog phase locked loop (PLL) device as a low pass filter for removing high frequency jitter from the output clock, as called for in claims 4, 7 and 14.

*Citation of Relevant Prior Art*

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Prior art Ueno et al. (U.S. Patent No. 5,436,665) discloses a motion picture coding apparatus with a dividing circuit and a quantizer.

Prior art Nishitani (U.S. Patent No. 4,862,173) discloses a method and circuit for carrying out forward and inverse quantization by varying a reference step size.

*Inquiry*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linh M. Nguyen whose telephone number is (571) 272-1749. The examiner can normally be reached on Alternate Mon, Tuesday - Friday from 7:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy P Callahan can be reached on (571) 272-1740. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Linh M. Nguyen  
Examiner  
Art Unit 2816

LMN

A handwritten signature in black ink, appearing to read "Linh M. Nguyen".